NEUROPHARMACOLOGY

List of Contents, Author and Subject Index
Volume 28, 1989

Chief Editors

P. B. Bradley

E. Costa

PERGAMON PRESS

OXFORD — NEW YORK — BEIJING
FRANKFURT — SÃO PAULO — SYDNEY
TOKYO — TORONTO

NEUROPHARMACOLOGY

Chief Editors

P. B. BRADLEY, The Medical School,
Birmingham B15 2TJ, England
E. COSTA, FIDIA-Georgetown Institute for the Neurosciences,
3900 Reservoir Road, Washington, DC 20007, U.S.A.

Editorial Assistant

GILLIAN V. S. SMITH (Birmingham)

Executive Editorial Board

G. K. AGHAJANIAN, New Haven
B. COX, Macclesfield
A. C. CUELLO, Montreal
M. GALLAGHER, Chapel Hill
R. GILLIS, Washington
A. R. GREEN, London
A. G. KARCZMAR, Maywood
B. J. KEY, Birmingham
S. PAUL, Bethesda
T. W. ROBBINS, Cambridge
M. A. SIMMONDS, London
W. J. WOJCIK, Washington

Advisory Editorial Board

M. ANTONACCIO, Bloomfield
M. H. APRISON, Indianapolis
R. BALDESSARINI, Belmont
F. E. BLOOM, La Jolla
R. J. BOAKES, Newcastle upon Tyne
N. G. BOWERY, London
I. BRIGGS, Macclesfield
R. W. BRIMBLECOMBE, Welwyn Garden City
S. BUNNEY, New Haven
V. CASTELLUCCI, Montreal
G. G. S. COLLINS, Sheffield
S. J. COOPER, Birmingham
B. M. COX, Maryland
J. R. COYLE JR, Baltimore
J. DAVIES, London
D. A. DOWNS, Ann Arbor
A. DRAY, London
S. J. ENNA, Houston
S. E. FILE, London
C. FORNAL, Princeton
D. GALLAGHER, New Haven
A. J. GOUDIE, Liverpool
A. GUIDOTTI, Washington
A. J. HANCE, Davis
I. HANIN, Chicago
A. G. HAYES, Ware
D. J. HEAL, Nottingham
R. G. HILL, Harlow
B. HOFFER, Denver
J.-S. HONG, Research Triangle Park
SUSAN D. IVERSEN, Harlow
J. JACOB, Paris
P. JENNER, London
N. KHAZAN, Baltimore
M. J. KUHAR, Baltimore
R. KUMAR, London
B. E. LEONARD, Galway
J. LICHTMAN, St Louis
H. J. LITTLE, Bristol
H. LOH, San Francisco
C. A. MARSDEN, Nottingham
I. L. MARTIN, Cambridge
A. T. MCKNIGHT, Harlow
R. MILLER, Chicago
M. C. W. MINCHIN, Maidenhead
T. MURRAY, Corvallis
J. M. MUSACCHIO, New York
R. J. NAYLOR, Bradford
N. H. NEFF, Ohio
A. NEGRO-VILAR, Research Triangle Park
S. H. NGAI, New York
D. A. A. OWEN, Welwyn Garden City
G. W. PASTERNAK, New York
P. H. REDFERN, Bath
R. J. RODGERS, Bradford
D. J. SANGER, Meudon La Foret
R. SCHWARCZ, Baltimore
R. D. SCHWARTZ, Durham
P. SOKOLOVE, Catonsville
I. P. STOLERMAN, London
M. TRICKLEBANK, Harlow
J. A. WADDINGTON, Dublin
R. A. WEBSTER, London
B. WEISS, Philadelphia
P. WOOD, Somerville
G. N. WOODRUFF, Cambridge

Publishing Office: Journals Production Unit, Pergamon Press plc, Hennock Road, Marsh Barton, Exeter, Devon EX2 8NE, England (*Tel.* Exeter (0392) 51558; *Fax* (0392) 425370)

Subscription and Advertising Offices:
North America: Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, NY 10523, U.S.A.
Rest of the World: Pergamon Press plc, Headington Hill Hall, Oxford OX3 0BW, England (*Tel.* Oxford (0865) 64881)

Published monthly. Annual institutional subscription rate (1990) DM 1240.00; 2-year institutional rate (1990/91) DM 2356.00; personal subscription rate for those whose library subscribes at the regular rate (1990) DM 180.00.

Prices are subject to amendment without notice.

Back Issues: Back issues of all previously published volumes, in both hard copy and on microform are available direct from Pergamon Press offices.

Copyright © 1990

Pergamon Press plc

It is a condition of publication that manuscripts submitted to this journal have not been published and will not be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. However, assignment of copyright is not required from authors who work for organizations which do not permit such assignment. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform, or any other reproductions of similar nature, and translations. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical, photocopying, recording or otherwise, without permission in writing from the copyright holder.

Photocopying information for users in the U.S.A.

The Item-fee Code for this publication indicates that authorization to photocopy items for internal or personal use is granted by the copyright holder for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service provided the stated fee for copying beyond that permitted by Section 107 or 108 of the U.S. Copyright Law is paid. The appropriate remittance of $3.00 per copy per article is paid directly to the Copyright Clearance Center Inc., 27 Congress Street, Salem, MA 01970.

Permission for other use

The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works or for resale. Specific written permission must be obtained from the publisher for such copying. **The Item-fee Code for this publication is:** 0028-3908/90 $3.00 + 0.00

♾™ The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences—Permanence of Paper for Printed Library Materials, ANSI Z39.48-1984.

CONTENTS OF VOLUME 28

NUMBER 1

J. M. Stirling, A. J. Cross and A. R. Green	The binding of [^{3}H]thienyl cyclohexylpiperidine ([^{3}H]TCP) to the NMDA-phencyclidine receptor complex	1
M. G. Kolta, P. Shreve and N. J. Uretsky	Effect of pretreatment with amphetamine on the interaction between amphetamine and dopamine neurons in the nucleus accumbens	9
S. Vybíral and L. Janský	The role of dopaminergic pathways in thermoregulation in the rabbit	15
P. L. Wood, Helen S. Kim, W. C. Boyar and A. Hutchison	Inhibition of nigrostriatal release of dopamine in the rat by adenosine receptor agonists: A_1 receptor mediation	21
S. Iyengar, A. Hausler, Helen S. Kim, M. Marien, C. A. Altar and P. L. Wood	The dopamine autoreceptor agonist, (±)-*trans*-1,3,4,4a5,10b-hexahydro-4-propyl-2H [1]benzopyrano [3,4-b] pyridin-9-ol hydrochloride (CGS 15855A), modulates striatal dopamine metabolism and prolactin release	27
A. J. Billingsley, N. T. Brammer, M. D. Wood and M. C. W. Minchin	A comparison of the effects of the selective 5-HT uptake inhibitor WY 27587 on 5-HT uptake into platelets and synaptosomes in the rat	33
V. Mollace, E. Donato Di Paola, S. Gratteri and G. Nisticò	Age-related alterations in cardiovascular responsiveness to clonidine infused into the nucleus tractus solitarii in rats	37
Bridget Wardley-Smith, M. J. Halsey, Diane Hawley and M. H. Joseph	The effects of kynurenic acid, quinolinic acid and other metabolites of tryptophan on the development of the high pressure neurological syndrome in the rat	43
G. W. Bourne, R. Čapek and Barbara Esplin	Phencyclidine suppresses hippocampal long-term potentiation through stereospecific activation of phencyclidine receptors	49
S. Sagratella, M. Benedetti, A. Pézzola and A. Scotti de Carolis	Behavioural and electroencephalographic effects of excitatory amino acid antagonists and sigma opiate/phencyclidine-like compounds in rats	57
H. N. Bhargava, P. Ramarao, C. M. Richter and A. A. Bieniarz	Effect of *trans*-3,4-dichloro-*N*-methyl-*N*-[2-(1-pyrrolidin) cyclohexyl]-benzeneacetamide (U-50,488H), a kappa opioid receptor agonist, on intake of food in food-deprived and non-deprived spontaneously hypertensive and normotensive Wistar–Kyoto rats	63
F. A. Abdulla, I. S. Aneja and K. P. Bhargava	Effect of morphine on far-field somatosensory evoked potentials in the rat	69
K. A. Alkadhi and Yvonne H. Hogan	Effect of calcium on synaptic facilitation by potassium channel blockers in superior cervical ganglion of rat	75
Amanda L. Johnston and Sandra E. File	Sodium phenobarbitone reverses the anxiogenic effects of compounds acting at three different central sites	83
O. Benešová and A. Pavlík	Perinatal treatment with glucocorticoids and the risk of maldevelopment of the brain	89
Preliminary Note **M. Diana, S. J. Young and P. M. Groves**	Modulation of dopaminergic terminal excitability by D1 selective agents	99

NUMBER 2

Linda L. Werling, P. N. McMahon, P. S. Portoghese, A. E. Takemori and B. M. Cox	Selective opioid antagonist effects on opioid-induced inhibition of release of norepinephrine in guinea pig cortex	103
A. J. Hance, W. D. Winters, D. D. Quam, J. L. Benthuysen and G. G. Cadd	Catalepsy induced by combinations of ketamine and morphine: potentiation, antagonism, tolerance and cross-tolerance in the rat	109

Adina Michael-Titus, Nathalie Dourmap, H. Caline, J. Costentin and J.-C. Schwartz	Role of endogenous enkephalins in locomotion and nociception studied with peptidase inhibitors in two inbred strains of mice (C57BL/6J and DBA/2J)	117
S. Iyengar, Helen S. Kim, M. R. Marien, D. McHugh and P. L. Wood	Modulation of mesolimbic dopaminergic projections by beta-endorphin in the rat	123
G. P. Luscombe, R. H. Hopcroft, P. C. Thomas and W. R. Buckett	The contribution of metabolites to the rapid and potent down-regulation of rat cortical β-adrenoceptors by the putative antidepressant sibutramine hydrochloride	129
Margit Dóda and E. S. Vizi	Effect of CH-38083, a selective antagonist of alpha$_2$-adrenoceptors, on renal sympathetic function	135
J. Sawynok and A. Reid	Lesions to ascending noradrenergic and serotonergic pathways modify antinociception produced by intracerebroventricular administration of morphine	141
N. R. Newberry and G. P. Connolly	Muscarinic pharmacology of the spinal cord of the neonatal rat *in vitro*	149
J. Johansen, J. Yang, C. F. Zorumski and Anna L. Kleinhaus	Different actions of a short-acting barbiturate on sodium and potassium conductances in invertebrate and vertebrate neurons	153
S. Farkas, I. Tarnawa and P. Berzsenyi	Effects of some centrally acting muscle relaxants on spinal root potentials: a comparative study	161
P.-A. Lavoie, T. Khazen and P. R. Filion	Mechanisms of the inhibition of fast axonal transport by local anesthetics	175
A. J. Hiltunen, T. U. C. Järbe, M. R. Kamkar and T. Archer	Behaviour in rats maintained by low differential reinforcement rate: effects of Δ^1-tetrahydrocannabinol, cannabinol and cannabidiol, alone and in combination	183
Preliminary Notes		
S. G. Berger, P. G. Waser and A. Chang Sin-Ren	Distribution of the 4-aminopyridine derivative 3-methoxy-4-amino-pyridine in mice	191
A. A. Baumeister, G. Hebert, Marianne Nagy and M. Hawkins	Pentobarbital attenuates the antinociceptive effect of intranigral morphine	195

NUMBER 3

M. Hallak and E. Giacobini	Physostigmine, tacrine and metrifonate: the effect of multiple doses on acetylcholine metabolism in rat brain	199
P. Salmon, E. Tsaltas and J. A. Gray	Disinhibition by propranolol and chlordiazepoxide of nonrewarded lever-pressing in the rat is unaffected by dorsal noradrenergic bundle lesion	207
G. B. De Sarro and A. De Sarro	Antagonists of adenosine and alpha-2-adrenoceptors reverse the anti-convulsant effects of tizanidine in DBA/2 mice	211
W. A. Cass, J. P. Bowman and Julie K. Elmund	Behavior, striatal and nucleus accumbens field potential patterns and dopamine levels in rats given amphetamine continuously	217
A. Czyrak, E. Mogilnicka and J. Maj	Dihydropyridine calcium channel antagonists as antidepressant drugs in mice and rats	229
K. Taguchi and Y. Suzuki	Effects of microiontophoretically-applied morphine on the Purkinje cell in the cerebellum of the cat	235
M. F. O'Neill, C. T. Dourish and S. D. Iversen	Morphine-induced analgesia in the rat paw pressure test is blocked by CCK and enhanced by the CCK antagonist MK-329	243
Alison E. Cole, Christine U. Eccles, J. J. Aryanpur and R. S. Fisher	Selective depression of *N*-methyl-D-aspartate-mediated responses by dextrorphan in the hippocampal slice in rat	249
Kathryn A. King and J. R. Holtman Jr	γ-Aminobutyric acid receptors at the ventral surface of the medulla inhibit respiratory motor outflow to the laryngeal musculature	255

T. G. Waldrop and R. M. Bauer	Modulation of sympathetic discharge by a hypothalamic GABAergic mechanism	263
E. Geller, B. Schiff, P. Halpern, Z. Speiser and S. Cohen	A benzodiazepine receptor antagonist improves emergence of mice from halothane anaesthesia	271
M. J. Durcan, R. G. Lister and M. Linnoila	Interactions of alpha$_2$-adrenoceptor antagonists with medetomidine and with ethanol in a holeboard test	275
A. Sahgal, A. B. Keith, S. Lloyd and J. A. Edwardson	[D-TRP^{11}]-Neurotensin, unlike α-flupenthixol, may not block amphetamine-induced hyperactivity in rats	283
J. R. Naranjo, A. Arnedo, M. T. Molinero and J. Del Rio	Involvement of spinal monoaminergic pathways in antinociception produced by substance P and neurotensin in rodents	291
L. D. Van de Kar, S. A. Lorens, Janice H. Urban and Cynthia L. Bethea	Effect of selective serotonin (5-HT) agonists and 5-HT$_2$ antagonist on prolactin secretion	299
A. Mørk and A. Geisler	The effects of lithium *in vitro* and *ex vivo* on adenylate cyclase in brain are exerted by distinct mechanisms	307
M. Yamamoto, M. Shimizu and S. Kawabata	Cerebral vasodilators potentiate the anti-anoxic activity of indeloxazine hydrochloride, a new cerebral activator	313

NUMBER 4

G. Falconieri Erspamer, C. Severini, V. Erspamer and P. Melchiorri	Pumiliotoxin B-like alkaloid in extracts of the skin of the Australian myobatrachid frog *Pseudophryne coriacea*: effects on the systemic blood pressure of experimental animals and the rat heart	319
G. K. Matheson, Deanna Gage-White, G. White, Deanne Guthrie, Janet Rhoades and Vanessa Dixon	The effects of gepirone and 1-(2-pyrimidinyl)-piperazine on levels of corticosterone in rat plasma	329
Omotayo O. Ebong and M. Aboo Zar	Failure of non-adrenergic transmission in the rat vas deferens	335
Y. Wang and H. K. Lee	Facilitation of γ-aminobutyric acid-induced depression by (+)PCMP and dexoxadrol in the cerebellar Purkinje neurons of the rat	343
E. Brouillet, C. Chavoix, V. de la Sayette, Ph. Hantraye, M. Kunimoto, M. Khalili-Varasteh, B. Guibert, D. Fournier, R. H. Dodd, R. Naquet and M. Mazière	Anticonvulsant activity of the diaryltriazine, LY81067: studies using electroencephalographic recording and positron emission tomography	351
A. De Sarro, G. B. De Sarro, C. Ascioti and G. Nisticó	Epileptogenic activity of some β-lactam derivatives: structure–activity relationship	359
Sharon A. Segal and R. A. Gillis	Increases in coronary vascular resistance initiated by blockade of CNS GABAergic tone occurs in the hindbrain	367
H. Lorković	Sensitivity of rodent skeletal muscles to dicholines: dependence on innervation and age	373
N. F. Makari, G. R. Trimarchi and J. J. Buccafusco	Contribution of pre- and post-synaptic components to heightened central cholinergic activity in spontaneously hypertensive rats	379
Véronique Aslanian and B. Renaud	Changes in serotonin metabolism in the rat raphe magnus and cardiovascular modifications following systemic administration of clonidine and other central alpha$_2$-agonists: an *in vivo* voltammetry study	387
P. J. Elliott, L. Garofalo and A. C. Cuello	Responsiveness to dopaminergic agonists after devascularizing lesions of the cortex	397
Kathy M. O'Boyle, D. E. Gaitanopoulos, M. Brenner and J. L. Waddington	Agonist and antagonist properties of benzazepine and thienopyridine derivatives at the D$_1$ dopamine receptor	401
M. Casas, S. Ferré, A. Cobos, J. M. Grau and F. Jané	Relationship between rotational behaviour induced by apomorphine and caffeine in rats with unilateral lesion of the nigrostriatal pathway	407

R. J. M. Niesink and J. M. van Ree	Involvement of opioid and dopaminergic systems in isolation-induced pinning and social grooming of young rats	411
Preliminary Notes		
D. Duterte-Boucher, Chantal Panissaud, A. Michael-Titus and J. Costentin	Stimulation of central D1 dopamine receptors reverses reserpine-induced hypothermia in mice	419
J. Giordano and J. Dyche	Differential analgesic actions of serotonin 5-HT_3 receptor antagonists in the mouse	423
T. H. Lanthorn and G. E. Fagg	Gostatin blocks physiological actions and binding of acidic amino acids in rat brain	429
D. P. Cain, F. Boon and M. Bevan	Failure of aspartame to affect seizure susceptibility in kindled rats	433
A. M. Babcock, C. Barton, Lynn Perez and Frances Hearndon	Bombesin produces hypothermia in insulin treated rats	437

NUMBER 5

	Obituary: B. B. Brodie	i
H. S. Swartzwelder, C. Ferrari, W. W. Anderson and W. A. Wilson	The drug MK-801 attenuates the development, but not the expression, of long-term potentiation and stimulus train-induced bursting in hippocampal slices	441
J. T. Wroblewski, E. Fadda, J. Mazzetta, J. W. Lazarewicz and E. Costa	Glycine and D-serine act as positive modulators of signal transduction at *N*-methyl-D-aspartate sensitive glutamate receptors in cultured cerebellar granule cells	447
Mariella Bertolino, S. Vicini and E. Costa	Kynurenic acid inhibits the activation of kainic and *N*-methyl-D-aspartic acid-sensitive ionotropic receptors by a different mechanism	453
Anne Jackson and D. J. Sanger	Conditioned taste aversions induced by phencyclidine and other antagonists of *N*-methyl-D-aspartate	459
R. Samanin, T. Mennini, C. Bendotti, D. Barone, S. Caccia and S. Garattini	Evidence that central 5-HT_2 receptors do not play an important role in the anorectic activity of D-fenfluramine in the rat	465
M. Carli, C. Prontera and R. Samanin	Effect of 5-HT_{1A} agonists on stress-induced deficit in open field locomotor activity of rats: evidence that this model identifies anxiolytic-like activity	471
A. J. Sleight, R. J. Smith, C. A. Marsden and M. G. Palfreyman	The effects of chronic treatment with amitriptyline and MDL 72394 on the control of 5-HT release *in vivo*	477
A. Horita, M. A. Carino and C. Chinn	Fentanyl produces cholinergically-mediated analeptic and EEG arousal effects in rats	481
N. R. Newberry and G. P. Connolly	Selective antagonism of muscarinic potentials on the superior cervical ganglion of the rat	487
R. de la Garza, R. Freedman and J. Hoffer	Nicotine-induced inhibition of cerebellar Purkinje neurons: specific actions of nicotine and selective blockade by mecamylamine	495
T. Rothe and V. Bigl	The ontogeny of benzodiazepine receptors in selected regions of the rat brain: effect of perinatal exposure to diazepam	503
N. Brose, R. D. O'Neill, M. G. Boutelle and Marianne Fillenz	The effects of anxiolytic and anxiogenic benzodiazepine receptor ligands on motor activity and levels of ascorbic acid in the nucleus accumbens and striatum of the rat	509
Judith Catelli Sved and A. F. Sved	Cardiovascular responses elicited by γ-aminobutyric acid in the nucleus tractus solitarius: evidence for action at the $GABA_B$ receptor	515
R. Gabor, S. Regunathan and T. L. Sourkes	Central regulation of adrenal tyrosine hydroxylase: interaction between dopamine and GABA systems	521
I. Nukina and F. S. LaBella	Neuropeptides modulate beta-adrenergic agonist binding and receptor downregulation in slices of rat brain	529

Preliminary Notes

H. L. Wiener, A. Lajtha and H. Sershen — Dopamine D1 receptor and dopamine D2 receptor binding activity changes during chronic administration of nicotine in 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine-treated mice 535

A. Shekhar, J. N. Hingtgen and J. A. DiMicco — Anxiogenic effects of noreleagnine, a water soluble beta-carboline in rats 539

NUMBER 6

Obituary: Professor L. Valzelli i

E. A. Jackson, P. Jenner and C. D. Marsden — Behavioural and morphological changes following treatment with GM-1 ganglioside of rats with an electrolytic lesion of the substantia nigra 543

A. Pavlík and J. Pilař — Protection of cell proteins against free-radical attack by nootropic drugs: scavenger effect of pyritinol confirmed by electron spin resonance spectroscopy 557

Sharon W. Fleetwood and S. G. Holtzman — Stress-induced potentiation of morphine-induced analgesia in morphine-tolerant rats 563

K. Ishihara, H. Katsuki, M. Sugimura and M. Satoh — Idebenone and vinpocetine augment long-term potentiation in hippocampal slices in the guinea pig 569

A. D. Weissman, Karen L. Marquis, J. E. Moreton and Edythe D. London — Effects of self-administered phencyclidine on regional uptake of 2-deoxy-D-[1-^{14}C]glucose in brain 575

A. Røed — The effects of tetraethylammonium during twitch and tetanic stimulation of the phrenic nerve diaphragm preparation in the rat 585

H. Shinozaki, M. Ishida and Y. Goto — Depression of decerebrate rigidity in the rat by antagonists of excitatory amino acids 593

D. Hönack and W. Löscher — Amygdala-kindling as a model for chronic efficacy studies on antiepileptic drugs: experiments with carbamazepine 599

Y. Yoneda and K. Ogita — Solubilization of stereospecific and quisqualate-sensitive activity of [^{3}H]glutamate binding in the pituitary of the rat 611

W. O. Boggan, L. D. Middaugh and K. Faught — Effect of dopaminergic drugs on enhancement of the binding of quinuclidinyl benzilate by phencyclidine *in vivo* 617

L. A. Connell and D. I. Wallis — 5-Hydroxytryptamine depolarizes neonatal rat motorneurones through a receptor unrelated to an identified binding site 625

Helen C. Jackson and I. Kitchen — Behavioural profiles of putative 5-hydroxytryptamine receptor agonists and antagonists in developing rats 635

Preliminary Notes

L. Barthó — Pharmacological evidence for the presence of cholecystokinin-containing neurones in the mesenteric nerves supplying the guinea-pig ileum 643

I. S. Login and J. M. Trugman — The dopamine agonist, PHNO ((+)-4-propyl-9-hydroxynaphthoxazine), inhibits cyclic adenosine 3′,5′-monophosphate formation and prolactin release from anterior pituitary cells 647

Announcement I

NUMBER 7

P. E. Simson and J. M. Weiss — Blockade of α_2-adrenergic receptors, but not blockade of γ-aminobutyric acid$_A$, serotonin, or opiate receptors, augments responsiveness of locus coeruleus neurons to excitatory stimulation 651

E. J. Fletcher, C. Drew, D. Lodge and C. T. O'Shaughnessy — Efflux of rubidium in rat cortical synaptosomes is blocked by sigma and dextromethorphan binding site ligands 661

Ph. de Witte, Ch. Heidbreder and B. P. Roques	Kelatorphan, a potent enkephalinases inhibitor, and opioid receptor agonists DAGO and DTLET, differentially modulate self-stimulation behaviour depending on the site of administration	667
M. S. Scheller, M. H. Zornow, J. E. Fleischer, G. T. Shearman and T. F. Greber	The noncompetitive *N*-methyl-D-aspartate receptor antagonist, MK-801 profoundly reduces volatile anesthetic requirements in rabbits	677
S. K. Long, R. H. Evans and F. Krijzer	Effects of depressant amino acids and antagonists on an *in vitro* spinal cord preparation from the adult rat	683
Elizabeth Swearengen and C. Chavkin	Comparison of opioid and GABA receptor control of excitability and membrane conductance in hippocampal CA1 pyramidal cells in rat	689
J. M. Stirling, A. J. Cross, T. N. Robinson and A. R. Green	The effects of $GABA_B$ receptor agonists and antagonists on potassium-stimulated $[Ca^{2+}]_i$ in rat brain synaptosomes	699
F. Andres-Trelles, V. Bibby, S. Lustman and M. A. Simmonds	Effects of cortisol on $GABA_A$ receptor-mediated responses compared in guinea-pig ileum and rat cuneate nucleus	705
R. Karler, C. Petty, L. Calder and S. A. Turkanis	Proconvulsant and anticonvulsant effects in mice of acute and chronic treatment with cocaine	709
O. Giorgi, M. G. Corda, I. Gritti, M. Mariotti, E. Ongini and G. Biggio	Binding sites for [^{3}H]2-oxo-quazepam in the brain of the cat: evidence for heterogeneity of benzodiazepine recognition sites	715
C. Eva, P. Ferrero, P. Rocca, A. Funaro, B. Bergamasco, L. Ravizza and E. Genazzani	[^{3}H]*N*-Methylscopolamine binding to muscarinic receptors in human peripheral blood lymphocytes: characterization, localization on T-lymphocyte subsets and age-dependent changes	719
X. Vige and M. Briley	Muscarinic receptor plasticity in rats lesioned in the nucleus basalis of Meynert	727
S. H. Liu, W. M. Fu and S. Y. Lin-Shiau	Effects of sodium selenite on neuromuscular junction of the mouse phrenic nerve-diaphragm preparation	733
Zilda M. Muniz and C. R. Diniz	The effect of crotoxin on the longitudinal muscle-myenteric plexus preparation of the guinea pig ileum	741
S. B. Boertje, D. Le Beau and Carmen Williams	Blockade of histamine-stimulated alterations in cerebrovascular permeability by the H_2-receptor antagonist cimetidine	749
Preliminary Notes		
S. C. J. Pedder, R. Wilcox, J. M. Tuchek, D. D. Johnson and R. D. Crawford	The relationship between anticonvulsant activity and receptor affinity of N-methyl-D-aspartate antagonists in epileptic fowl	753
T. Celeste Napier and Pamela E. Potter	Dopamine in the rat ventral pallidum/substantia innominata: biochemical and electrophysiological studies	757
D. E. Grigoriadis, R. G. Struble, D. L. Price and E. B. De Souza	Normal pattern of labeling of cerebral cortical corticotropin-releasing factor (CRF) receptors in Alzheimer's disease: evidence from chemical cross-linking studies	761

NUMBER 8

A. Røed	Effects of the sulphydryl inhibitor *N*-ethyl-maleimide on the phrenic nerve and diaphragm muscle of the rat	765
R. Karler, V. Murphy, L. D. Calder and S. A. Turkanis	Pentylenetetrazol kindling in mice	775
L. S. Chen, D. S. Millington, D. A. Maltby and J. O. McNamara	Effects of intranigral application of clinically-effective anticonvulsants on electroshock-induced seizures	781
M. E. Newman and B. Lerer	Effects of chronic electroconvulsive shock on D_1 and D_2 dopamine receptor-mediated activity of adenylate cyclase in homogenates of striatum and limbic forebrain of rat	787

D. Hovevey-Sion, I. J. Kopin, R. W. Stull and D. S. Goldstein	Effects of monoamine oxidase inhibitors on levels of catechols and homovanillic acid in striatum and plasma	791
B. Nickel and I. Szelenyi	Comparison of changes in the EEG of freely moving rats induced by enciprazine, buspirone and diazepam	799
R. M. Kostrzewa and M. I. Saleh	Attenuation of SCH 23390-induced alteration of striatal dopamine D_1 receptor ontogeny by prolyl-leucyl-glycinamide in the rat	805
E. Schlicker, R. Betz and M. Göthert	Investigation into the age-dependence of release of serotonin and noradrenaline in the rat brain cortex and of autoreceptor-mediated modulation of release	811
J. W. McKearney	Serotonin-antagonist effects of 1-(1-naphthyl)piperazine on operant behavior of squirrel monkeys	817
Ana-Maria De Oliveira, H. Schoemaker, A. Segonzac and S. Z. Langer	Differences in the temperature dependence of drug interaction with the noradrenaline and serotonin transporters	823
R. N. Pechnick, C. A. Wong, R. George, A. Thurkauf, A. E. Jacobson and K. C. Rice	Comparison of the effects of the acute administration of dexoxadrol, levoxadrol, MK-801 and phencyclidine on body temperature in the rat	829
A. Wauquier, W. Melis and P. A. J. Janssen	Long-term neurological assessment of the post-resuscitative effects of flunarizine, verapamil and nimodipine in a new model of global complete ischaemia	837
M. Benuck, M. E. A. Reith and A. Lajtha	Phosphoinositide hydrolysis induced by depolarization and sodium channel activation in mouse cerebrocortical slices	847
H. A. Tilson, R. D. Schwartz, S. F. Ali and R. L. McLamb	Colchicine administered into the area of the nucleus basalis decreases cortical nicotinic cholinergic receptors labelled by [^{3}H]-acetylcholine	855
M. Yamamoto and M. Shimizu	Effects of a new analogue of thyrotropin-releasing hormone on pentobarbital-induced sleeping time in rodents	863
K. C. F. Fone, J. V. Johnson, C. A. Marsden and G. W. Bennett	Comparative behavioural and biochemical effects of repeated intrathecal administration of thyrotrophin-releasing hormone (TRH) or two analogues of TRH in adult rats	867
Preliminary Notes		
S. L. Peterson	Anticonvulsant profile of an anesthetic steroid	877
G. A. Young, K. L. Marquis, N. C. Paquette, R. P. Gussio and N. Khazan	Haloperidol pretreatment unmasks the kappa opioid effects of U-50,488H on cortical EEG and EEG power spectra in rats	881
J. Albrecht	L-Glutamate stimulates the efflux of newly taken up glutamine from astroglia but not from synaptosomes of the rat	885
S. J. Gibson, P. V. Andrews and R. D. Helme	Photoperiodic variation in substance P induced plasma extravasation in the rat	889
Announcements		I
Erratum		V

NUMBER 9

R. Moratalla, T. M. Barth and N. G. Bowery	Benzodiazepine receptor autoradiography in corpus striatum of rat after large frontal cortex lesions and chronic treatment with diazepam	893
T. Kilfoil, A. Michel, D. Montgomery and R. L. Whiting	Effects of anxiolytic and anxiogenic drugs on exploratory activity in a simple model of anxiety in mice	901
O. Malminen and P. Kontro	γ-Aminobutyric acid and benzodiazepine receptors in cultured cerebellar granule cells: effects of taurine and its lipophilic derivatives	907
M. A. Hashim and D. Bieger	Excitatory amino acid receptor-mediated activation of solitarial deglutitive loci	913

M. A. Hashim, G. T. Bolger and D. Bieger	Modulation of solitarial deglutitive *N*-methyl-D-aspartate receptors by dihydropyridines	923
M. Vasse and P. Protais	Potentiation of apomorphine-induced stereotyped behaviour by acute treatment with dopamine depleting agents: a potential role for an increased stimulation of D_1 dopamine receptors	931
G. Bagetta, G. B. de Sarro, E. Priolo, R. Marra and G. Nisticò	Inhibition by pertussis toxin of the soporific effects induced by stimulation of dopamine D_2 autoreceptors in the ventral tegmental area in rats	941
V. Seutin, L. Massotte and A. Dresse	Electrophysiological effects of neurotensin on dopaminergic neurones of the ventral tegmental area of the rat *in vitro*	949
H. N. Bhargava, P. Ramarao and A. Gulati	Changes in multiple opioid receptors in regions of the brain in rats treated chronically with thyroxine	955
W. K. K. Ho and H. L. Wen	Opioid-like activity in the cerebrospinal fluid of pain patients treated by electroacupuncture	961
Ana I. Baamonde, A. Hidalgo and F. Andrés-Trelles	Sex-related differences in the effects of morphine and stress on visceral pain	967
S. A. Turkanis, L. M. Partlow and R. Karler	Effects of cocaine on neuromuscular transmission in the lobster	971
N. A. Ibrahim and B. D. Goldstein	Electrophysiological evidence for nicotinic and muscarinic modulation of spinal cord reflexes	977
G. Bagetta, G. B. de Sarro, C. Ascioti, E. Priolo and G. Nisticò	Age-dependent ECoG spectrum power alterations are reduced by phosphatidylserine in rats	985
H. Kageyama and A. Kurosawa	Long-lasting inhibitory action of caerulein on climbing fiber system in the cerebellum of the rat	991
A. Saija, P. Princi, R. De Pasquale and G. Costa	Modifications of the permeability of the blood–brain barrier and local cerebral metabolism in pentobarbital- and ketamine-anaesthetized rats	997
Announcement		I

NUMBER 10

J. L. Benthuysen, A. J. Hance, D. D. Quam and W. D. Winters	Comparison of isomers of ketamine on catalepsy in the rat and electrical activity of the brain and behavior in the cat	1003
J. L. Benthuysen, A. J. Hance, D. D. Quam and W. D. Winters	Synthetic opioids compared with morphine and ketamine: catalepsy, cross-tolerance and interactions in the rat	1011
H. Welzl, G. Kuhn and J. P. Huston	Self-administration of small amounts of morphine through glass micropipettes into the ventral tegmental area of the rat	1017
C. A. Hendrie, J. K. Shepherd and R. J. Rodgers	Differential effects of the CCK antagonist, MK-329, on analgesia induced by morphine, social conflict (opioid) and defeat experience (non-opioid) in male mice	1025
M. Ukai, T. Toyoshi and T. Kameyama	Multi-dimensional analysis of behavior in mice treated with the delta opioid agonists DADL (D-Ala^2-D-Leu^5-enkephalin) and DPLPE (D-Pen^2-L-Pen^5-enkephalin)	1033
M. S. Wood, F. D. Rodriguez and J. R. Traynor	Characterisation of κ-opioid binding sites in rat and guinea-pig spinal cord	1041
T. Crisp and D. J. Smith	A local serotonergic component involved in the spinal antinociceptive action of morphine	1047
S. C. Cheetham, Y. Yamaguchi and R. W. Horton	[^{3}H]5-Hydroxytryptamine binding sites in postmortem human brain	1055
Q. Pei, T. Zetterström and M. Fillenz	Both systemic and local administration of benzodiazepine agonists inhibit the *in vivo* release of 5-HT from ventral hippocampus	1061

Y. Sakurai-Yamashita, Y. Kataoka, K. Yamashita, A. Miyazaki, M. Ushio, K. Mine, M. Niwa and S. Ueki	Conflict behavior and dynamics of monoamines of various brain nuclei in rats	1067
M. L. Tsai, C. Y. Lee and M. T. Lin	Responses of cerebral circulation produced by adrenoceptor agonists and antagonists in rats	1075
P. D. Feldman and R. B. Felder	α-Adrenergic influences on neuronal responses to visceral afferent input in the nucleus tractus solitarius	1081
A. Ueki, P. N. Chong, A. Albanese, S. Rose, J. K. Chivers, P. Jenner and C. D. Marsden	Further treatment with MPTP does not produce parkinsonism in marmosets showing behavioural recovery from motor deficits induced by an earlier exposure to the toxin	1089
F. Hata and O. Yagasaki	Re-evaluation of the stimulatory effect of norepinephrine on the secretion of amylase in the parotid gland of the rat	1099
Lucia Sivilotti and A. Nistri	Antagonism of the actions of glutamate by pentobarbitone or midazolam in the frog optic tectum *in vitro*	1107
A. L. Horne and M. A. Simmonds	The pharmacology of quisqualate and AMPA in the cerebral cortex of the rat *in vitro*	1113
R. Veskov, O. V. Supljakov, N. P. Vesselkin and Lj. Rakić	Penicillin-induced bursting in motoneurones of the frog spinal cord. Elimination by NMDA antagonist	1119
G. G. S. Collins and K. S. Buckley	Antagonism of monosynaptic excitations in the mouse olfactory cortex slice by 6,7-dinitroquinoxaline-2,3-dione	1123
G. Wilkerson and Edythe D. London	Effects of methylenedioxymethamphetamine on local cerebral glucose utilization in the rat	1129
Ellen E. Codd, A. Y. L. Shu and R. F. Walker	Binding of a growth hormone releasing hexapeptide to specific hypothalamic and pituitary binding sites	1139
M. J. De Vito and G. C. Wagner	Methamphetamine-induced neuronal damage: a possible role for free radicals	1145

NUMBER 11

A. A. Baumeister, Tanya G. Anticich, G. Hebert, M. F. Hawkins and Marianne Nagy	Evidence that physical dependence on morphine is mediated by the ventral midbrain	1151
M. Bartoletti, M. Gaiardi, C. Gubellini, A. Bacchi and M. Babbini	Cross-tolerance between morphine and clonidine: a study on motility in rats	1159
M.-Y. Tsou, P.-W. Lui, T.-Y. Lee, J.-T. Pan and S. H. H. Chan	Differential effects of prazosin and yohimbine on fentanyl-induced muscular rigidity in rats	1163
A. Lund, A. Tjølsen and K. Hole	Desipramine in small doses induces antinociception in the increasing temperature hot-plate test, but not in the tail-flick test	1169
K. Pang and G. M. Rose	Differential effects of methionine^5-enkephalin on hippocampal pyramidal cells and interneurons	1175
K. Venkova, R. Radomirov and N. Pencheva	Effects of leu-enkephalin on the mechanical activity of longitudinal and circular muscles of the small intestine of the cat	1183
Karen L. Marquis, R. Gussio, M. G. Webb and J. E. Moreton	Cortical EEG changes during the self-administration of phencyclinoids	1193
C. Frank, S. Sagratella and A. Scotti de Carolis	An electrophysiological study on the common antitussive drug dextromethorphan in hippocampal slices in the rat	1199
M. Hara, M. Sasa and S. Takaori	Ventral tegmental area-mediated inhibition of neurons of the nucleus accumbens receiving input from the parafascicular nucleus of the thalamus is mediated by dopamine D_1 receptors	1203

S. Rose, M. Nomoto, E. A. Jackson, W. R. G. Gibb, P. Jenner and C. D. Marsden	Treatment with a selective MAO B inhibitor prevents loss of dopamine in the nucleus accumbens of MPTP-treated common marmosets	1211
Nicole Touchet and J. P. Bennett Jr	The metabolism of systemically-administered L-dihydroxyphenylalanine, by intact and dopamine-denervated striata, as revealed by brain microdialysis	1217
B. Costall, A. M. Domeney and R. J. Naylor	Desenkephalin-γ-endorphin is an antagonist of the hyperactivity response induced by infusion of dopamine into the nucleus accumbens of rat and ventral striatum of marmoset	1223
D. Saphier and S. Feldman	Adrenoceptor specificity in the central regulation of adrenocortical secretion	1231
Paula L. Hoffman, Frances Moses and B. Tabakoff	Selective inhibition by ethanol of glutamate-stimulated cyclic GMP production in primary cultures of cerebellar granule cells	1239
G. B. De Sarro, C. Ascioti, M. G. Audino, V. Libri, A. De Sarro and G. Nisticò	Behavioural and electrocortical effects after injection of two ornithine decarboxylase inhibitors into several areas of the brain in the rat	1245
J. Baumgold, B. B. Cooperman and T. M. White	Relationship between desensitization and sequestration of muscarinic cholinergic receptors in two neuronal cell lines	1253
K. Ogita, T. Suzuki and Y. Yoneda	Strychnine-insensitive binding of [^{3}H]glycine to synaptic membranes in rat brain, treated with Triton X-100	1263
Preliminary Notes		
A. R. Crossman, D. Peggs, S. Boyce, M. R. Luquin and M. A. Sambrook	Effect of the NMDA antagonist MK-801 on MPTP-induced parkinsonism in the monkey	1271
M. G. Grilli, A. G. Wright Jr and I. Hanbauer	Evidence for the involvement of distinct voltage-sensitive calcium channels in the release of ^{3}H-dopamine from primary cultures of mesencephalic neurons	1275
C. P. J. Dokla, S. C. Parker and L. J. Thal	Tetrahydroaminoacridine facilitates passive avoidance learning in rats with nucleus basalis magnocellularis lesions	1279
F. Nicoletti, S. Cavallaro, V. Bruno, M. Virgili, M. V. Catania, A. Contestabile and P. L. Canonico	Gangliosides attenuate NMDA receptor-mediated excitatory amino acid release in cultured cerebellar neurons	1283
C. M. Flores, B. A. Hulihan-Giblin and K. J. Kellar	Naltrexone blocks nicotine-induced prolactin release	1287

NUMBER 12

M. Yamamoto, S. Kawabata and M. Shimizu	Pharmacological effects of indeloxazine, a new cerebral activator, on brain functions distinct from other cerebral metabolic enhancers	1291
J. C. Harper, C. H. Brennan and J. M. Littleton	Genetic up-regulation of calcium channels in a cellular model of ethanol dependence	1299
C. H. Brennan, A. Lewis and J. M. Littleton	Membrane receptors, involved in up-regulation of calcium channels in bovine adrenal chromaffin cells, chronically exposed to ethanol	1303
S. Hynie, J. T. Wroblewski and E. Costa	Profile of phosphatidylinositol metabolism stimulated by carbachol and glutamate in primary cultures of rat cerebellar neurons	1309
D. S. Deshmukh, S. Kuizon, V. P. S. Chauhan and H. Brockerhoff	Effect of barbiturates on polyphosphoinositide biosynthesis and protein kinase C activity in synaptosomes	1317
Z. Speiser, S. Reicher, S. Gitter and S. Cohen	Tacrine or arecoline mediates reversal of anoxia- or AF64A-induced behavioural disorders in the developing rat	1325
L. L. F. Tseng	Intracerebroventricular administration of β-endorphin releases immunoreactive met-enkephalin from the spinal cord in cats, guinea pigs and mice	1333

P. Delay-Goyet, V. Kayser, J.-M. Zajac, G. Guilbaud, J.-M. Besson and B. P. Roques	Lack of significant changes in μ,δ opioid binding sites and neutral endopeptidase EC 3.4.24.11 in the brain and spinal cord of arthritic rats	1341
R. B. Rothman, J. B. Long, J. W. Holaday, V. Bykov, B. R. de Costa, C.-H. Kim, A. E. Jacobson and K. C. Rice	A study of the interaction of the alkylating agent, NIH10236, with opioid receptors *in vitro* and *in vivo*	1349
J. Davies	Effects of tizanidine, eperisone and afloqualone on feline dorsal horn neuronal responses to peripheral cutaneous noxious and innocuous stimuli	1357
O. B. Fasmer, S. Hunskaar and K. Hole	Antinociceptive effects of serotonergic reuptake inhibitors in mice	1363
G. D. Pratt and N. G. Bowery	The 5-HT_3 receptor ligand, [^{3}H]BRL 43694, binds to presynaptic sites in the nucleus tractus solitarius of the rat	1367
G. Venturini, F. Stocchi, V. Margotta, S. Ruggieri, D. Bravi, P. Bellantuono and G. Palladini	A pharmacological study of dopaminergic receptors in planaria	1377
J. A. Stamford, Z. L. Kruk and J. Millar	Dissociation of the actions of uptake blockers upon dopamine overflow and uptake in the rat nucleus accumbens: *in vivo* voltammetric data	1383
J. A. Hoskins and Linda J. Davis	The acute effect on levels of catecholamines and metabolites in brain, of a single dose of MPTP in 8 strains of mice	1389
L. A. Connell, A. Majid and D. I. Wallis	Involvement of α_1-adrenoceptors in the depolarizing but not the hyperpolarizing responses of motorneurones in the neonate rat to noradrenaline	1399
L. Janiri, A. M. Persico and E. Tempesta	Dual effects of lephetamine on spontaneous and evoked neuronal firing in the somatosensory cortex of the rat	1405
J. Weidenfeld, O. Abramsky and H. Ovadia	Evidence for the involvement of the central adrenergic system in interleukin 1-induced adrenocortical response	1411

Preliminary Notes

M. Nilsson, A. Lehmann and Elisabeth Hansson	Effects of 2-guanidinoethane sulfonate on glutamate uptake in primary astroglial cultures from the rat cerebral cortex	1415
U. Bonuccelli and R. G. Fariello	Evidence for an epileptogenic action of 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine	1419
C. T. Dourish, E. N. Herbert and S. D. Iversen	Blockade of apomorphine-induced yawning in rats by the dopamine autoreceptor antagonist (+)-AJ 76	1423
Helen C. Jackson, Tamzin L. Ripley and D. J. Nutt	Exploring δ-receptor function using the selective opioid antagonist naltrindole	1427
C. Dugovic, A. Wauquier and P. A. J. Janssen	Differential effects of the new antipsychotic risperidone on sleep and wakefulness in the rat	1431

Announcement I